CLAIMS

What is claimed is:

1. A micro electromechanical system (MEMS) driver circuit, comprising:

a current source coupled to a MEMS device;

a hold capacitor coupled to the MEMS device; and

a reset circuit configured to discharge the hold capacitor,

wherein said current source is configured to be controlled by a pulse-width modulated (PWM) signal.

2. The driver circuit of claim 1, wherein a voltage driven to the MEMS device is approximately proportional to a pulse width of the PWM signal.

3. The driver circuit of claim 2, wherein the voltage driven to the MEMS device controls a physical position of an element the MEMS device.

4. The driver circuit of claim 1, further comprising:

AND logic configured to receive as inputs the PWM signal and a column select signal and to output a signal to control the current source.

5. The driver circuit of claim 4, further comprising a buffer circuit configured to buffer the PWM signal which is an input to the AND logic.

6. The driver circuit of claim 5, wherein the buffered PWM signal output by the buffer circuit comprises a row drive signal.

7. The driver circuit of claim 4, wherein the AND logic and the current source are implemented using two transistors in series.

8. The driver circuit of claim 1, wherein the reset mechanism comprises a switch configured to ground the hold capacitor when the switch is closed.

9. The driver circuit of claim 1, wherein the hold capacitor is configured to receive a voltage pulse signal, and wherein the reset mechanism includes bringing the voltage pulse signal to ground.

10. The driver circuit of claim 1, further comprising a transistor coupled to the current source to isolate the current source from an output voltage of the driver circuit.

11. The driver circuit of claim 1, wherein said current source, hold capacitor, and reset mechanism comprises a first stage, and further comprising a second stage which functions as a synchronization stage.

12. The driver circuit of claim 11, wherein the synchronization stage comprises an amplifier circuit coupled to an output of the first stage, a transfer switch coupled to the output of the amplifier circuit and controlled by a transfer signal, and a second hold capacitor coupled to the output of the transfer switch.

13. The driver circuit of claim 1, further comprising a second current source, wherein the second current source is configured to be controlled by a second PWM signal.

14. The driver circuit of claim 13, wherein an output of the driver circuit is coarsely controlled by one of the PWM signals and finely controlled by another of the PWM signals.

15. The driver circuit of claim 14, wherein the hold capacitor is charged according to a summation of outputs of the two current sources.

16. The driver circuit of claim 1, wherein the current source and hold capacitor are integrated into a semiconductor die with the MEMS device.

17. The driver circuit of claim 16, wherein the PWM signal is generated on a driver die that is separate from the die with the MEMS device.

18. A method of controlling a voltage at a micro electromechanical system (MEMS) cell, comprising:

receiving a pulse-width modulated (PWM) signal;

controlling a current source using the PWM signal; and

adjusting the voltage at the MEMS cell in proportion to a pulse width of the PWM signal.

19. The method of claim 18, further comprising using a hold capacitor to maintain a level of the voltage at the MEMS cell and discharging the hold capacitor to reset the level of the voltage at the MEMS cell.

20. An apparatus for controlling a voltage at a micro electromechanical system (MEMS) cell, the circuit comprising:

means for receiving a pulse-width modulated (PWM) signal;

means for controlling a current source using the PWM signal; and

means for adjusting the voltage at the MEMS cell in proportion to a pulse width of the PWM signal.